

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



A389.1  
M342

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
LIBRARY



BOOK NUMBER

91862

A389.1  
M342

For Administrative Use - School Lunch Program

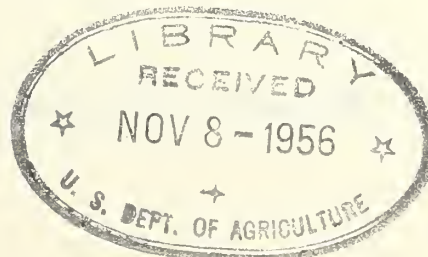
UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Marketing Service  
Food Distribution Division  
Washington 25, D. C.

February 1954

LET'S HAVE MORE VITAMIN A AND C FOODS IN SCHOOL LUNCHES

The attached text was written to accompany the visual material entitled, "Let's Have More Vitamin A and C Foods in School Lunches." This material has been reproduced in color in 20 by 32 inch paper panels, 35 millimeter double frame film strips, and 2 by 2 inch slides. It was prepared by the Food Distribution Division of the Agricultural Marketing Service, for use at School Lunch Workshops in the United States (including Alaska, Hawaii, Puerto Rico, and the Virgin Islands). The purpose of the material is to stimulate interest in planning and preparing Type A school lunches that will be nutritionally adequate in all respects.

Particular emphasis is given to vitamin A and vitamin C, the two nutrients that are most likely to be short in school lunches. Only the best sources of these two nutrients are shown. The vitamin C list, for example, includes all foods that would, in one form or another, supply 20 milligrams or more of ascorbic acid per  $\frac{1}{2}$  cup. The vitamin A foods are those that supply 2,000 International Units or more of vitamin A value per  $\frac{1}{2}$  cup. These foods, prepared and served in the recommended amounts, together with the constant items in the lunch, will meet the lunch's share of recommended vitamin A and C levels for the average school child.







NARRATIVE FOR COVER PAGE

(LET'S HAVE MORE VITAMIN A AND VITAMIN C FOODS  
IN SCHOOL LUNCHES)

This easel display (film strip) (set of slides) is designed to show you first of all why children need vitamin A and vitamin C in the diet. We are also going to show you what foods are good sources of these two vitamins, and how these foods should be prepared and served in Type A lunches.

The need for greater emphasis along these lines was pointed up in a study of school lunch nutritional requirements made during 1952-53. That study was conducted by the United States Department of Agriculture and State educational agencies to find ways of helping local school lunch workers plan, prepare, and serve better school lunches.

That study along with other studies made throughout the country showed that the two nutrients most likely to be short in school lunches were vitamin A and vitamin C. This seemed a bit surprising as these two nutrients are found in such a wide variety of foods. It seemed therefore that if greater care were taken in selecting foods we could easily get more vitamin A and vitamin C in school lunches.

We're going to see now how this can be done--using the Type A meal pattern as our guide.

Next Panel - Foods required in the Type A lunch





## NARRATIVE FOR PANEL 1

### (FOODS REQUIRED IN THE TYPE A LUNCH)

The foods required in the Type A lunch are familiar to all of us.

The  $\frac{1}{2}$  pint of milk must be served as a beverage. It must be whole milk that meets the minimum butterfat and sanitation requirements of the State or locality.

For the protein-rich food, we have a choice of 2 ounces of cooked lean meat, poultry, or fish -- or 2 ounces of cheese -- or 1 egg -- or  $\frac{1}{2}$  cup cooked dry beans or peas -- or 4 tablespoons of peanut butter. This requirement may also be met by serving half the amount of any two of these items.

The vegetable-or-fruit requirement calls for  $\frac{3}{4}$  cup of vegetables or fruits -- or a combination of both -- in either raw or cooked form. This is the group we are going to talk about later.

The bread requirement may be met by serving one or more slices of enriched or whole-grain bread -- or an equivalent amount of muffins or other breads made of enriched flour or whole-grain cereal. The 2 teaspoons of butter or fortified margarine may be used on the bread -- or for the preparation and seasoning of other foods.

By making a good selection of food within the Type A pattern, the school lunch will provide the key nutrients that are essential to the growth and well-being of children.

Next Panel - Key nutrients in a good Type A lunch



## NARRATIVE FOR PANEL 2

### (KEY NUTRIENTS IN A GOOD TYPE A LUNCH)

These are the key nutrients in a good Type A lunch: Protein, calcium, iron, vitamin A, the B vitamins, vitamin C, and calories.

Protein comes chiefly from lean meat and the other protein-rich foods listed in the Type A pattern.

Our best sources of calcium are milk and cheese. We also get some calcium from enriched or whole-grain bread, and from certain vegetables and fruits.

Iron comes chiefly from lean meat, eggs, and vegetables.

Now -- omitting vitamin A and vitamin C for the moment -- let's talk about the B vitamins and calories. Thiamine comes chiefly from enriched or whole-grain bread; lean pork (fresh and cured); legumes which include dry beans and peas; soybeans; and peanuts. Riboflavin comes chiefly from milk -- niacin from lean meat. Calories, of course, are provided by all foods -- some foods providing more calories than others.

Studies have shown that thiamine and calories are frequently short in school lunches. To increase the thiamine in the lunch, extra bread should be offered, and lean pork and dry beans and peas should be served often. Calorie shortages can be remedied by serving more bread, or by giving seconds or larger portions of other items in the lunch.

Now -- let's discuss the sources of vitamin A and vitamin C, the two nutrients that are most likely to be short in school lunches.

Next Panel - Vitamin A in the Type A lunch  
comes from a wide variety of foods





### NARRATIVE FOR PANEL 3

(VITAMIN A IN THE TYPE A LUNCH COMES FROM A WIDE VARIETY OF FOODS)

Vitamin A in the Type A lunch comes from a wide variety of foods. These include: Whole milk -- butter or fortified margarine -- fruits -- vegetables -- eggs -- cheese -- liver and liverwurst.

This pie chart shows clearly that we get almost half of the vitamin A needed in the lunch from the  $\frac{1}{2}$  pint of whole milk and the 2 teaspoons of butter or fortified margarine that must be served daily. With this large contribution that we are sure of each day it should not be difficult to get enough of this nutrient in the lunch if we serve the right kinds of fruits and vegetables. Among our best sources are the deep yellow fruits and vegetables and the dark green leafy vegetables. Liver and liverwurst are good sources too, but they are not served very often in most school lunch programs.

Eggs and cheese, on the other hand, are served more frequently, but in many cases the quantity served does not supply the needed amount of this essential vitamin. It can readily be seen, therefore, that we must also serve the deep yellow fruits and vegetables and the dark green vegetables if we are to get enough vitamin A in our lunches.

Now - why do we need vitamin A in the diet?

Next Panel - Vitamin A is needed for normal growth





#### NARRATIVE FOR PANEL 4

##### (VITAMIN A IS NEEDED FOR NORMAL GROWTH)

Vitamin A is needed for the normal growth of children. Its special job is to help keep the skin and the linings of the nose, mouth, and inner organs in a healthy condition. Vitamin A also has a very definite part in the normal development of sound teeth, particularly the enamel. It is needed too, for good vision and to aid in building up resistance to colds and other infections.

Now let's talk about the sources of vitamin C and why it is needed in the diet.

Next Panel - Vitamin C in the Type A lunch



## NARRATIVE FOR PANEL 5

### (VITAMIN C IN THE TYPE A LUNCH COMES CHIEFLY FROM FRUITS AND VEGETABLES)

As this chart shows, vitamin C in the Type A lunch comes chiefly from fruits and vegetables. Only a very small amount is supplied by the milk which must be served daily. Fortunately, we have a good variety of fruits and vegetables to choose from, and most of them are favorites with children -- citrus fruits -- tomatoes -- sweetpotatoes -- cabbage -- and others. All of these foods are good sources of vitamin C if care is taken in selecting and preparing them.

Next Panel - Vitamin C is needed for normal growth and vigor



## NARRATIVE FOR PANEL 6

### (VITAMIN C IS NEEDED FOR NORMAL GROWTH AND VIGOR)

Vitamin C, like vitamin A, is needed for normal growth and vigor. It is important, too, for the development of strong bones and blood vessels and for the sound structure of teeth and gums. If we fail to get enough vitamin C every day, resistance to infections is lowered. With shortages over long periods of time, the gums may become tender and bleed easily -- and the joints may swell and hurt. The blood vessels may weaken also -- and those near the surface of the skin may hemorrhage at the slightest bruise. Extreme shortages of vitamin C result in a disease called scurvy. Although scurvy is now rare in this country, there is evidence that many children are getting too little vitamin C in their diets for good health.

Next Panel - Help A and C reach the goal





## NARRATIVE FOR PANEL 7

(HELP A AND C REACH THE GOAL)

It's up to you now, to help A and C reach the goal of a nutritious school lunch by serving the right foods. Here again are the key nutrients in the Type A lunch -- calories -- thiamine -- protein -- calcium -- riboflavin -- niacin -- iron -- and vitamins A and C.

With the help of the Type A pattern, all but four of them have reached the goal. As we mentioned earlier, by serving additional bread -- or seconds -- or larger portions of other items in the lunch, we can put calories and thiamine across the line too. The reason why A and C sometimes fail to reach the goal even though the vegetable and fruit requirement is met, is that the fruits and vegetables served in the lunches are not good sources of A and C. Sometimes even though good sources are selected, much of their value is lost through improper handling.

In the rest of these panels (slides) (this film strip) we are going to see which fruits and vegetables are the best sources of these vitamins and how to make sure that vitamin values are not lost during storage -- preparation -- cooking -- or serving.

Next Panel - For enough vitamin A serve one of these  
at least twice a week



## NARRATIVE FOR PANEL 8

(FOR ENOUGH VITAMIN A SERVE ONE OF THESE  
AT LEAST TWICE A WEEK)

For enough vitamin A in the lunches -- we need to serve one of these foods at least twice a week. This is necessary to supplement the daily amounts provided by the milk and butter or margarine. The dark green leafy vegetables which we mentioned earlier as good sources include: Beet greens, broccoli, chard, collards, cress, dandelion greens, kale, mustard greens, spinach, and turnip greens. Most of these greens are available the year round in fresh, canned, or frozen form. The deep yellow vegetables and fruits rich in vitamin A are: Apricots, cantaloup, carrots, mangos, persimmons, pumpkin, winter squash, and sweetpotatoes. Of course, some of these foods are not available in all areas. Others, however, are in the market throughout the year in one form or another. Many of the vegetables and fruits are starred as you can see. This means that they are good sources of vitamin C as well as vitamin A. Last on the list are the liver and liverwurst. We can use beef, calf, lamb, pork, or chicken liver -- all are excellent sources of vitamin A.

All of the foods on this list are such good sources of vitamin A that we can put this vitamin over the goal by serving any two of them during the week. Some vitamin A will also be provided by other vegetables and fruits served in the lunches. Fortunately, when we get more than enough of this vitamin in the diet, it can be stored in the body as a reserve supply and drawn on as needed.

Next Panel - Serve a vitamin C food every day





(SERVE A VITAMIN C FOOD EVERY DAY)

To help C reach the goal, we should serve a food rich in vitamin C every day. This vitamin unlike vitamin A cannot be stored in the body to any large extent.

The fruits and vegetables shown here are the best sources of vitamin C. The citrus fruits and juices -- in fresh, canned, or frozen form -- add zest to the lunch and are usually well liked.

Cantaloup, gooseberries, guavas, honeydew melons, mangos, papayas, and strawberries, offer variety in those areas where they are available. Fresh or canned tomatoes are generally plentiful and are favorites with most children.

The vegetables rich in vitamin C -- in fresh, canned, or frozen form -- give us a wide choice. They include: Green asparagus, broccoli, brussels sprouts, cabbage, chinese cabbage, collards, cress, kale, kohlrabi, mustard greens, green peppers, spinach, sweetpotatoes, and turnip greens.

Of course, there are other fruits and vegetables that contain vitamin C but they are not good enough sources to be included in this list. However, some of them -- white potatoes, for example -- do make important contributions if they are properly prepared, and if they are served frequently.

In order to make sure of having enough vitamin C in the lunch, we need to use one of these good sources every day as part of the 3/4-cup requirement.

As indicated previously, the starred fruits and vegetables are good sources of both vitamins A and C. By serving one of these starred items such as sweetpotatoes, both the A and C needs of the lunch would be met with one food.





NARRATIVE FOR PANEL 10

(VITAMIN C IS EASILY LOST)

Choosing the right food is only the first step in helping vitamin C reach the goal as this vitamin is easily lost -- during preparation -- during cooking -- during serving -- and during storage.

Some of the common practices used in school lunch programs cause heavy losses of vitamin C. These include:

Grinding cabbage for slaw.

Cooking vegetables in a large amount of water in an uncovered kettle.

Holding vegetables too long on the steam table before serving.

Storing foods at too high temperatures.

Some vitamin C will be lost even under the best conditions of preparation, cooking, serving, and storage -- but we can keep these losses to the minimum by following recommended practices.

Let's see now what they are.

Next Panel - Save vitamin C when preparing and cooking vegetables



NARRATIVE FOR PANEL 11

(SAVE VITAMIN C WHEN PREPARING AND COOKING VEGETABLES)

Here are ways in which we can save vitamin C when preparing and cooking vegetables:

1st Prepare only enough for the day's lunch to avoid having leftovers.

This is important because reheated vegetables retain very little, if any, vitamin C. If vegetables are prepared for cooking in advance -- and this is good management -- cover and refrigerate them promptly.

2d Stagger the cooking schedules so that each group of children served will have freshly cooked vegetables. This practice will not only save vitamin C but will also make the vegetables look better and taste better.

3d Cook the vegetables only until tender. This is important whether they are baked, steamed, or boiled because overcooking will result in heavy losses of vitamin C. When boiling vegetables, use only enough water to cook them evenly and to prevent scorching. Have the water boiling before adding the vegetables -- then cover the kettle so that the steam will help to cook them quickly.

4th Serve the vegetables promptly after cooking. Long holding on a hot stove or steam table will also cause heavy losses of vitamin C.

Next Panel - Save vitamin C when preparing salads and fruit juices



NARRATIVE FOR PANEL 12

(SAVE VITAMIN C WHEN PREPARING SALADS AND FRUIT JUICES)

Now -- here are ways to save vitamin C when preparing salads and fruit juices:

- 1st Prepare only enough for the day's use. Here again, let's avoid having leftovers since they are poor sources of vitamin C. For highest vitamin C value, prepare salads and fruit juices as near serving time as possible. Chop or shred vegetables for salads and cut tomatoes and fruits - but not too fine. For example, shred cabbage for cole slaw. Grinding it exposes more surface to the air and causes greater loss of vitamin C.
- 2d Cover salad materials and fruit juices as soon as they have been prepared -- and chill thoroughly in the refrigerator. To avoid wilting, add seasoning or dressing to tossed salads just before serving time.
- 3d Serve salads and fruit juices promptly after they have been removed from the refrigerator. Long holding at room temperature will result in losses of vitamin C.

Next Panel - Store fruits and vegetables at proper temperatures





## NARRATIVE FOR PANEL 13

### (STORE FRUITS AND VEGETABLES AT PROPER TEMPERATURES)

Another way of saving vitamin C is by storing fruits and vegetables at the proper temperatures.

In general, school lunch programs use three types of storage -- dry storage -- refrigerated storage -- and freezer storage.

Cool dry storage is needed for root vegetables, potatoes, dried fruits, and for most canned fruits and vegetables. The usual dry storage temperatures recommended for these foods are 40° to 70° F. However, we have shown 50° to 70° here because sweetpotatoes, one of the good sources of vitamin C, are included in this group, and they do not keep well at temperatures below 50° F.

Refrigerated storage of 35° to 40° F. is needed for the more perishable foods, such as green leafy vegetables, peppers, tomatoes, cabbage, and citrus fruits, including canned concentrated orange juice. Although fresh oranges and grapefruit may be kept in dry storage for short periods of time, it is better to refrigerate them. To reduce moisture losses, all fresh fruits and vegetables should be kept in their original containers. Leafy green vegetables should be covered with a damp cloth.

Frozen fruits and vegetables must, of course, be stored at 0° F. or below to keep them in good condition.

Storage temperatures higher than those shown here for each type of food will destroy vitamin C. To keep a check on storage temperatures we need to have a thermometer in each type of storage facility.

Now -- let's review the main points concerning vitamin A and vitamin C.

Next Panel - Remember, plan, prepare, serve a good Type A lunch



## NARRATIVE FOR PANEL 14

(REMEMBER, PLAN, PREPARE, SERVE A GOOD TYPE A LUNCH)

Remember -- to plan, prepare, and serve good Type A lunches with a vitamin A-rich food at least twice a week and a vitamin C-rich food every day.

A Type A lunch that might be served on a day when both of these nutrients are to be included is shown here: Cheese-meat loaf, mashed potatoes, cole slaw, muffins, butter or fortified margarine, stewed dried apricots, and milk. This lunch ~~meets~~ all requirements of the Type A pattern.

Now let's check the menu for vitamins A and C. You will recall that the milk and butter or fortified margarine meet about half of the vitamin A needs of the lunch -- and cheese provides an additional amount. But, to make sure of having enough of this vitamin, apricots from the vitamin A list were included.

The main source of vitamin C is the cabbage in the cole slaw. Small amounts of vitamin C are also provided by the milk and by some of the other foods.

By careful planning as shown here -- by following recommended practices for storing and preparing foods -- and by serving the foods promptly it will be easy to get more vitamin A and vitamin C in school lunches.





